

CLAIMS:

1. A trash receptacle for receiving an empty flexible trash can liner and drawing the empty liner tight against the interior surfaces of the receptacle in a full open position absent air pockets and billowing, comprising:

a receptacle having a bottom wall and a perimeter side wall extending upwardly therefrom circumscribing a central chamber for receiving an empty flexible bag liner and terminating in an open top end over which an open end of the empty liner may be fitted; and

air extracting means associated with said receptacle for extracting air trapped between exterior surfaces of the empty liner and interior surfaces of said central chamber to create a vacuum therebetween sufficient to eliminate air pockets and billowing and draw the empty liner against said interior surfaces in a full open position.

2. The trash receptacle according to claim 1, further comprising:

an outer base member having a bottom wall adapted to be supported on a support surface and a perimeter side wall extending upwardly therefrom terminating in an open top end; and

said receptacle is slidably received in said base member and movable between a lower nested position in said outer base member and an upper position raised relative thereto;

said receptacle creating a region of lower pressure between exterior surfaces of its said bottom wall and side wall and interior surfaces of said outer base member bottom wall and side wall as it is raised to its said upper position and creating a region of higher pressure therebetween as it is moved to its said lower position; and

said air extracting means comprises one-way valve means operative to open as said receptacle is raised to its said upper position and to close as said receptacle is moved to its said lower position; wherein

said one-way valve opens as said receptacle is raised and air trapped between the exterior surface of the liner and the interior surfaces of said receptacle is extracted into said region of lower pressure creating said vacuum sufficient to draw the empty liner toward said interior surfaces of said receptacle, and as said receptacle is lowered said one-way valve closes to prevent entry of air between the exterior surface of the liner and the interior surfaces of said receptacle, and the air between the exterior surfaces of said receptacle and the interior surfaces of said outer base member is expelled to the atmosphere.

3. The trash receptacle according to claim 2, further comprising:

resilient means disposed between receptacle and said outer base member to resiliently bias said receptacle to its said upper position; wherein

said receptacle is moved to its said lower position by exerting a downward force thereon against the resilient force of said resilient means, and is moved to its said upper position by said resilient means when said downward force is removed.

4. The trash receptacle according to claim 2, wherein

said receptacle side wall and said outer base member side wall are tapered longitudinally to facilitate movement of said receptacle between its said lower nested position and its said upper position.

5. The trash receptacle according to claim 2, wherein

said one-way valve means is disposed on said receptacle; and

the air between the exterior surfaces of said receptacle and the interior surfaces of said outer base member is expelled to the atmosphere through an annulus or space between the exterior surface of said receptacle side wall and the interior surface of said outer base member.

6. The trash receptacle according to claim 2, wherein

a first said one-way valve means is disposed on said receptacle; and

a second one-way valve means is disposed on said outer base member;

said second one-way valve means operative to close as said receptacle is raised to its said upper position and to open as said receptacle is moved to its said lower position; wherein

said second one-way valve means closes as said receptacle is raised to prevent entry of air from the atmosphere into the area between the interior surfaces of said outer base member and the exterior surfaces of said receptacle, and as said receptacle is lowered said second one-way valve opens to allow the air between the exterior surfaces of said receptacle and the interior surfaces of said outer base member to be expelled to the atmosphere.

7. The trash receptacle according to claim 2, further comprising:

hold-down means on said outer base member for maintaining it on the support surface when said receptacle is raised relative thereto.

8. The trash receptacle according to claim 2, wherein

said outer base member is weighted to maintain it on the support surface when said receptacle is raised relative thereto.

9. The trash receptacle according to claim 1, wherein

said receptacle bottom wall is slidably mounted horizontally in said receptacle central chamber for vertical movement relative thereto between a raised upper position and a lower position and has an outer periphery engaged with the interior of said central chamber in a sliding seal relation;

said bottom wall, in its raised position, shortening the length of said central chamber and thus reducing its volume, and as said bottom wall is moved to its said lower position, the volume of said upper chamber increases; and

said air extraction means comprises vent means on said receptacle disposed beneath said bottom wall in its said lower position; wherein

air beneath said bottom wall is expelled to the atmosphere through said vent means as said bottom wall is moved to its lower position, and the increasing volume of said upper chamber reduces the pressure of air trapped between the exterior surface of the liner and the interior surfaces of said upper chamber relative to ambient air inside the empty liner to create said vacuum sufficient to draw the empty liner toward said upper chamber interior surfaces.

10. The trash receptacle according to claim 1, wherein:

said receptacle bottom wall comprises a resilient diaphragm mounted horizontally in said receptacle central chamber having an outer periphery secured to the interior of said central chamber in a sealing relation, and having a center portion movable relative to said outer periphery between a raised upper position and a lower position;

said diaphragm center portion in its raised position, reducing the volume of said central chamber, and as said center portion is moved to its said lower position, the volume of said upper chamber increases; such that

the increasing volume of said upper chamber reduces the pressure of air trapped between the exterior surface of the liner and the interior surfaces of said upper chamber relative to ambient air inside the empty liner to create said vacuum sufficient to draw the empty liner toward said upper chamber interior surfaces.

11. The trash receptacle according to claim 1, wherein

said air extracting means comprises an exhaust fan connected with said receptacle having an air intake in communication with said receptacle central chamber and an air exhaust in communication with the exterior of said central chamber;

said exhaust fan operative to extract air trapped between exterior surfaces of the empty liner and interior surfaces of said central chamber and exhaust it to the exterior of said central chamber to create said vacuum therebetween sufficient to eliminate air pockets and billowing and draw the empty liner against said central chamber interior surfaces in a full open position.

12. The trash receptacle according to claim 11, wherein

said exhaust fan air intake is connected with a first end of a conduit having a second end disposed in communication with a lower end of said receptacle central chamber to extract air trapped between the exterior surfaces of the empty liner and interior surfaces of said central chamber.

13. The trash receptacle according to claim 1, wherein

said air extraction means comprises an air pump connected with said receptacle having an air intake in communication with said receptacle central chamber and an air exhaust in communication with the exterior of said interior chamber;

said air pump operative to extract air trapped between the exterior surfaces of the empty liner and interior surfaces of said central chamber and exhaust it to the exterior of said chamber to create a vacuum therebetween sufficient to eliminate air pockets and billowing and draw the empty liner against said central chamber interior surfaces in a full open position.

14. The trash receptacle according to claim 1, wherein

said air pump is a manually operated pump or bellows.

15. A method for eliminating air pockets and billowing when installing an empty flexible trash can liner in a trash receptacle and drawing the empty liner tight against the interior surfaces of the receptacle in a full open position, comprising the steps of:

providing a receptacle having a bottom wall and a peripheral side wall extending upwardly therefrom circumscribing a central chamber and terminating in an open top end having a rim.

placing an empty flexible trash can liner in said central chamber and fitting its open end over said rim; and

extracting air trapped between exterior surfaces of the empty liner and interior surfaces of said central chamber to create a vacuum therebetween sufficient to eliminate air pockets and billowing and draw the empty liner against said interior surfaces in a full open position.

16. The method according to claim 15, wherein

said step of extracting air comprises reducing the pressure of air trapped between the exterior surfaces of said liner and interior surfaces of said receptacle to a pressure sufficiently lower than ambient air inside the empty liner.

17. The method according to claim 16, wherein

said step of reducing the pressure of air comprises increasing the volume of said central chamber after said empty liner is placed therein such that the increasing volume of said central chamber reduces the pressure of air trapped between the exterior surface of the empty liner and the interior surfaces of said central chamber relative to ambient air inside the empty liner sufficient to draw the empty liner against said chamber interior surfaces.

18. The method according to claim 16, wherein

said receptacle is slidably disposed in telescoping relation in an outer base member having a bottom wall adapted to be supported on a support surface and a perimeter side wall extending upwardly therefrom circumscribing a second chamber terminating in an open top end, said receptacle movable in said base member between a lower position to reduce the volume of said second chamber and an upper position to increase the volume of said second chamber;

said receptacle central chamber is in fluid communication with said base member second chamber through one-way valve means that closes as said receptacle is moved to its lower position and opens as said receptacle is moved to its upper position; and

said step of reducing the pressure of air comprises moving said receptacle to its lower position to decrease the volume of said second chamber and close said valve means to prevent passage of air from said second chamber into the area between the exterior surface of the empty liner and the interior surfaces of said central chamber, and

moving said receptacle from its lower position to its upper position to increase the volume of said second chamber and open said valve means such that the increasing volume of said second chamber reduces the pressure therein and the pressure of air trapped between the exterior surface of the empty liner and the interior surfaces of said central chamber to a lower pressure than the pressure of ambient air inside the empty liner sufficient to draw the empty liner against said central chamber interior surfaces.

19. The method according to claim 18, wherein

said base member second chamber is in fluid communication with the atmosphere through one-way vent means that opens as said receptacle is moved to its lower position and closes as said receptacle is moved to its upper position; and

said step of moving said receptacle to its lower position opens said vent means to expel air from said second chamber to the atmosphere and said step of moving said receptacle to its upper position closes said vent means to prevent passage of air from the atmosphere into said second chamber.

20. The method according to claim 18, wherein

said receptacle side wall and said outer base member side wall are sized and shaped to define a small annulus or gap between the exterior surfaces of said receptacle and the interior surfaces of said outer base member; and

said step of moving said receptacle to its lower position expels air from said second chamber to the atmosphere through said annulus or gap.